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CLEAN VERSION OF PENDING CLAIMS

STRUCTURES AND METHODS TO ENHANCE FIELD EMISSION IN FIELD EMITTER DEVICES

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Serial No.: 09/387,164

Claims 1-36, as of February 6, 2003 (Date Response to Third Office Action filed).

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1. (Amended) A field emitter display device, comprising:

at least one emitter having an implanted oxide layer for releasing electrons at a predetermined energy level, wherein the implanted oxide layer is conforming to a surface of the at least one emitter.

2. (Amended) The device of claim 1, wherein the implanted oxide layer is formed for inhibiting outgassing including moisture.

3. (Amended) A field emitter display device, comprising:

at least one emitter having an implantation for releasing electrons at a predetermined energy level, wherein the implantation is conforming to a surface of the at least one emitter for lowering a potential barrier to enhance the releasing of electrons.

4. The device of claim 3, wherein the implantation is a layer underneath the surface of the at least one emitter.

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5. (Amended) A field emitter display device, comprising:

at least one emitter having an implantation for emitting electrons at a predetermined energy level, wherein the implantation is conforming to a surface of the at least one emitter for affecting a lowering mechanism to enhance the emission of electrons.

6. The device of claim 5, wherein the implantation is a layer underneath the surface of the at least one emitter.

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7. (Amended) A field emitter display device, comprising:

at least one emitter having an implantation for releasing electrons at a predetermined energy level, wherein the implantation is conforming to a surface of the at least one emitter for affecting an image force to enhance the releasing of electrons.

8. The device of claim 7, wherein the implantation is a layer underneath the surface of the at least one emitter.

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9. (Amended) A field emitter display device, comprising:

at least one emitter having an implantation for emitting electrons at a predetermined energy level, wherein the implantation is conforming to a surface of the at least one emitter for enhancing the Schottky effect to enhance the emission of electrons.

10. The device of claim 9, wherein the implantation is a layer underneath the surface of the at least one emitter.

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11. (Amended) A field emitter display device, comprising:

at least one emitter having an implantation for releasing electrons at a predetermined energy level, wherein the implantation is conforming to a surface of the at least one emitter for decreasing a dielectric effect of the at least one emitter to enhance the releasing of electrons.

12. The device of claim 11, wherein the implantation is a layer underneath the surface of the at least one emitter.

13. (Amended) A field emitter display device, comprising:

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at least one emitter having an ion implantation layer for releasing electrons at a predetermined energy level, wherein the ion implantation layer is conforming to a surface of the at least one emitter for enhancing the releasing of electrons and for limiting an outgassing to inhibit degradation of the at least one emitter.

14. The device of claim 13, wherein the ion implantation layer is embedded in the surface of the at least one emitter.

15. (Amended) A field emitter display device, comprising:

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at least one emitter having an implantation layer for releasing electrons at a predetermined energy level, wherein the implantation layer is conforming to a surface of the at least one emitter for lowering a potential barrier to enhance the releasing of electrons and for limiting an outgassing to inhibit degradation of the at least one emitter.

16. The device of claim 15, wherein the implantation layer is embedded under the surface of the at least one emitter.

17. (Amended) A field emitter display device, comprising:

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at least one emitter having an implantation layer for releasing electrons at a predetermined energy level, wherein the implantation layer is conforming to a surface of the at least one emitter for affecting an image force to enhance the releasing of electrons and for limiting an outgassing to inhibit degradation of the at least one emitter.

18. The device of claim 17, wherein the implantation layer is embedded in the surface of the at least one emitter.

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19. (Amended) A field emitter display device, comprising:
at least one emitter having an implantation layer for emitting electrons at a predetermined energy level, wherein the implantation layer is conforming to a surface of the at least one emitter for improving the Schottky effect to enhance the emission of electrons and for limiting an outgassing to inhibit degradation of the at least one emitter.

20. The device of claim 19, wherein the implantation layer is embedded under the surface of the at least one emitter.

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21. (Amended) A field emitter display device, comprising:
at least one emitter having an implantation layer for releasing electrons at a predetermined energy level, wherein the implantation layer is conforming to a surface of the at least one emitter for decreasing a dielectric effect of the at least one emitter to enhance the releasing of electrons and for limiting an outgassing to inhibit degradation of the at least one emitter.

22. The device of claim 21, wherein the implantation layer is embedded in the surface of the at least one emitter.

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23. (Amended) A field emitter display device, comprising:
at least one emitter having a silicon oxide ion implantation layer conforming to a surface of the at least one emitter.

24. (Amended) A field emitter display device, comprising:
at least one emitter having an oxide implantation layer conforming to a surface of the at least one emitter for releasing electrons at a predetermined energy level.

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25. (Amended) A field emitter display device, comprising:
at least one emitter having an embedded silicon oxide layer conforming to a surface of the
at least one emitter.

26. The device of claim 25, wherein the embedded silicon oxide layer is formed by an
implantation process.

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27. (Amended) A field emitter display device, comprising:
at least one emitter having an external coating and an embedded layer for releasing
electrons at a predetermined energy level, wherein the embedded layer is conforming to a surface
of the at least one emitter for limiting an outgassing to inhibit degradation of the at least one
emitter and for enhancing the releasing of electrons.

28. (Amended) A field emitter display device, comprising:
at least one emitter having an external coating and an embedded layer for releasing
electrons at a predetermined energy level, wherein the embedded layer is conforming to a surface
of the at least one emitter for limiting an outgassing to inhibit degradation of the at least one
emitter and for lowering a potential barrier to enhance the releasing of electrons.

29. (Amended) A field emitter display device, comprising:
at least one emitter having an external coating and an embedded layer for releasing
electrons at a predetermined energy level, wherein the embedded layer is conforming to a surface
of the at least one emitter for limiting an outgassing to inhibit degradation of the at least one
emitter and for affecting a lowering mechanism to enhance an emission of electrons.

30. (Amended) A field emitter display device, comprising:
at least one emitter having an external coating and an embedded layer for releasing electrons at a predetermined energy level, wherein the embedded layer is conforming to a surface of the at least one emitter for limiting an outgassing to inhibit degradation of the at least one emitter and for affecting an image force to enhance the releasing of electrons.

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31. (Amended) A field emitter display device, comprising:
at least one emitter having an external coating and an embedded layer for releasing electrons at a predetermined energy level, wherein the embedded layer is conforming to a surface of the at least one emitter for limiting an outgassing to inhibit degradation of the at least one emitter and for improving the Schottky effect to enhance an emission of electrons.

32. (Amended) A field emitter display device, comprising:
at least one emitter having an external coating and an embedded layer for releasing electrons at a predetermined energy level, wherein the embedded layer is conforming to a surface of the at least one emitter for limiting an outgassing to inhibit degradation of the at least one emitter and for decreasing a dielectric effect of the at least one emitter to enhance the releasing of electrons.

33. (Amended) A field emitter display device, comprising:
at least one emitter having an implantation for releasing electrons at a predetermined energy level, wherein the implantation is conforming to a surface of the at least one emitter for reducing a potential barrier to enhance the releasing of electrons and for inhibiting degradation of the at least one emitter in the presence of the outgassing; and
a light-emitting target for radiating in response to the released electrons.

34. The device of claim 33, wherein the light-emitting target is coated with luminescent matter.

35. The device of claim 33, wherein the light-emitting target is coated with phosphorescent matter.

36. (Amended) A video display, comprising:

a display screen for showing a video image; and

B13 an array of field emission devices for forming the video image, wherein the array of field emission devices comprises:

at least one emitter having an implantation for releasing electrons at a predetermined energy level, wherein the implantation is conforming to a surface of the at least one emitter for reducing a dielectric effect of the at least one emitter and is stable in the presence of the outgassing; and

a light-emitting target for radiating in response to the released electrons.
